

ABSTRACT OF THE DISCLOSURE

A device and method for probing high-speed local supply voltage fluctuations in VLSI circuits. The device includes a voltage probe coupled to a source of the local supply voltage, the voltage probe detectably emitting infrared radiation having an intensity that is related to a magnitude of the local supply voltage. The method includes emitting infrared radiation having an intensity that is related to the magnitude of the local supply voltage, taking initial measurements of the emitted radiation intensity for a range of supply voltages while digital activity is suspended in a vicinity of the local voltage probe, and compiling a calibration table matching measured intensity values with a magnitude of the supply voltage. Thereafter, digital activity is initiated by running a repetitive pattern through circuitry in the vicinity of the local voltage probe, where the repetitive pattern stimulates local supply voltage fluctuation events. Samples of emitted radiation intensity are taken using a time correlated photon counting or equivalent time sampling process and local supply voltage fluctuations are determined from the detected radiation.